

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

24 OCT 1936

Received at London Office

Date of writing Report 17-10-36 19 When handed in at Local Office 19 Port of Hamburg
 No. in Survey held at Kiel Date, First Survey 24-8-36 Last Survey 26-9-36 19
 Reg. Book. on the Steel Sm. "Congonian" (Number of Visits 7)
 Built at Kiel By whom built Hovaldtswerke A.G. Yard No. 740 When built 1936
 Owners United Africa Co. Ltd Port belonging to Liverpool
 Electric Light Installation fitted by Siemens-Schuckertwerke A.G. Contract No. When fitted 1936
 Is the Vessel fitted for carrying Petroleum in bulk, mineral oil, F.P. above 100°F

System of Distribution two wire system
 Pressure of supply for Lighting 110 volts, Heating ✓ volts, Power 110 volts.
 Direct or Alternating Current, Lighting Direct Power Direct
 If alternating current system, state frequency of periods per second ✓
 Has the Automatic Governor been tested and found efficient when the whole load is suddenly thrown on or off yes
 Generators, do they comply with the requirements regarding temperature rise yes, are they compound wound yes
 are they over compounded 5 per cent. yes, if not compound wound state distance between each generator ✓
 Where more than one generator is fitted are they arranged to run in parallel no, is an adjustable regulating resistance fitted in series with each shunt field yes Have certificates of test results for machines under 100 kw. been submitted and approved attached hereto Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing ✓
 Are all terminals accessible, clearly marked, and furnished with sockets yes, are they so spaced or shielded that they cannot be accidentally earthed, short circuited, or touched yes Are the lubricating arrangements of the generators as per Rule yes
 Position of Generators Engine room, starb. side, is the ventilation in way of the generators satisfactory yes are they clear of all inflammable material yes if situated near unprotected woodwork or other combustible material, state distance of same horizontally from or vertically above the generators ✓ and ✓
 are the generators protected from mechanical injury and damage from water, steam or oil yes, are their axes of rotation fore and aft yes
 Earthing, are the bedplates and frames of the generating plant efficiently earthed yes are the prime movers and their respective generators in metallic contact yes Main Switch Boards, where placed Engine room, starb. side
 If the generators and main switchboard are not placed in the same compartment, is each generator provided with a fuse on each insulated pole as near as possible to the terminals of the generator, additional to that provided on the main switchboard ✓
 Switchboards, are they placed in accessible positions, free from inflammable gases and acid fumes yes, are they protected from mechanical injury and damage from water, steam or oil yes, if situated near unprotected woodwork or other combustible material, state distance of same horizontally from or vertically above the switchboards ✓ and ✓, are they constructed wholly of durable, non-ignitable non-absorbent materials no, marble, is all insulation of high dielectric strength and of permanently high insulation resistance ✓
 is it of an approved type ✓, if semi-insulating material is used, are all conducting parts insulated from the slab with mica or micanite or other non-hygroscopic insulating material, and the slab similarly insulated from its framework yes, is the non-hygroscopic insulating material of an approved type yes, and is the frame effectively earthed yes Are the fittings as per Rule regarding:— spacing or shielding of live parts yes, accessibility of all parts yes, absence of fuses on back of board yes, temperature rise of omnibus bars yes, individual fuses to voltmeter, pilot or earth lamp yes, are moving parts of switches alive in the "off" position no are all screws and nuts securing connections effectively locked yes are any fuses fitted on the live side of switches no Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches
Generators: Double pole change over switch, fuse on each pole. Outg. circuits - Double pole change over sw. Fuse on each pole.
 Are turbine driven generators fitted with emergency trip switch as per rule ✓ Are cupboards or compartments containing switchboards composed of fire-resisting material or lined with approved material yes Instruments on main switchboard 2 ammeters 2 voltmeters ✓ synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection
 Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system ✓
 Switches, Circuit Breakers and Fusible Cut-outs, ✓ do these comply with the requirements of the Rules yes are the fusible cutouts of an approved type yes have the reversed



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Foundation

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current protection devices been tested under working conditions ☒

Joint Boxes, Section and Distribution Boards, is the

construction, protection, insulation, material, and position of these as per rule ☒

German Standards

Cables: Single, twin, concentric, or multicore *multicore* are the cables insulated and protected as per Tables IV, V, X or XI of the Rules

If the cables are insulated otherwise than as per Rule, are they of an approved type ☒

Fall of Pressure, state maximum between bus bars and

any point of the installation under maximum load *2 Volts*

Cable Sockets, are the ends of all cables having a sectional

area of 0.04 square inch and above provided with soldering sockets ☒

Paper Insulated and Varnished Cambric Insulated Cables.

If conductors are paper or varnished cambric insulated, is the dielectric at the exposed ends of the conductor protected from moisture by being suitably sealed with insulating compound ☒ or waterproof insulating tape ☒

Cable Runs, are the cables fixed as far as possible in accessible positions

not exposed to drip or accumulation of water or oil, or to high temperature from boilers, steam pipes, uptakes or other hot objects, or to avoidable risk of mechanical damage ☒ Are cables in machinery spaces, galleys, laundries, ballrooms and lavatories lead covered or run in conduit *Lead covered*

Support and Protection of Cables, state how the cables are supported and protected *armoured cables supported by clips*

On Deck in way of crew's alley way running in conduit

If cables are run in wood casings, are the casings and caps secured by screws ☒

are the cap screws of brass ☒

are the cables run in

separate grooves ☒

If armoured and lead covered cables are secured by metal clips, are the clips spaced as per Table VIII ☒

Refrigerated Chambers, are the cables and fittings in accordance with the special requirements ☒

Joints in Cables, state if any, and how made, insulated, and protected *water-tight joint boxes*

Watertight Glands and Deck Tubes, are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands

yes Bushes in Beams and Non-watertight Partitions, where unarmoured cables pass through beams and non-watertight partitions, are the holes efficiently bushed ☒ state the material of which the bushes are made *rubber*

Earthing Connections, state what earthing connections are fitted and their respective sectional areas ☒

are their connections made as per Rule ☒

Alternative Lighting, are the groups of lights in the propelling machinery space arranged as per Rule ☒

Emergency Supply, state

position and method of control of the emergency supply and how the generator is driven ☒

Navigation Lamps, are these separately wired ☒ controlled by separate switch and separate fuses ☒ are the fuses double pole ☒

are the switches and fuses grouped in a position accessible only to the officers on watch ☒

has each navigation lamp an automatic indicator as per Rule ☒ Secondary Batteries, are they constructed and fitted as per Rule *none*

Fittings, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, watertight ☒

are any fittings placed in spaces in which goods are liable to be stacked in close proximity to them; if so, how are they protected *none*

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected *in pump room:*

Lamps fitted in gas light pockets arranged outside in deck house.

outside of pump room in deck house

where are the controlling switches situated ☒

are all fittings suitably ventilated ☒ are all switches and lampholders constructed wholly of non-ignitable, non-absorbent materials ☒

Heating and Cooking Appliances, are they constructed and fitted as per Rule ☒ are air heaters constructed and fitted as per Rule ☒

Searchlight Lamps, No. of ☒ whether fixed or portable ☒ are their fittings as per Rule ☒

Arc Lamps, other than searchlight lamps, No. of ☒ are their live parts insulated from the frame or case ☒ are their fittings as per Rule ☒

Motors, are their working parts readily accessible ☒ are the coils self-contained and readily removable for replacement ☒

are the brushes, brush holders, terminals and lubricating arrangements as per Rule ☒ are the motors placed in well-ventilated compartments in which

inflammable gases cannot accumulate and clear of all inflammable material ☒ are they protected from mechanical injury and damage from

water, steam or oil ☒ are their axes of rotation fore and aft ☒ if situated near unprotected woodwork or other combustible

material, are the motors of the totally enclosed, pipe ventilated, forced draught, drip or flame proof type ☒

if not of this type, state distance of the combustible material horizontally or vertically above the motors ☒ and ☒

have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing *none* Control Gear and Resistances, are the generator field and motor speed regulators, starters and controllers constructed and fitted as per Rule ☒

Lightning Conductors, where lightning conductors

are required, are these fitted as per Rule ☒ Ships carrying Oil having a Flash Point less than 150° F. Have the special requirements of

the Rules been complied with regarding switches, joint boxes, section and distribution boards, protection of cables, method of distribution, lead of cables, lights and

fittings *Carrying mineral oil 10° above 150°* are all fuses of the filled cartridge type ☒ are they of an approved type ☒

If portable lamps for use in dangerous spaces are supplied, are they of a self-contained, battery-fed type approved by the Home Office ☒

Spare Gear, if the vessel is for open sea service have spares been supplied as per Rule ☒

PARTICULARS OF GENERATING PLANT.

DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Amps.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN No. 1	1	150	115	130	450	Steam engine	Steam	
AUXILIARY No. 2	1	15	115	130	450	Gas Oil Engine	Gas Oil	150° F
EMERGENCY								
ROTARY TRANSFORMER								

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		Approximate Length (Lead and Return) Feet.	Insulated with	HOW PROTECTED.
	No. per Pole.	Total Nominal Area per Pole Sq. Ins. 70°	No.	Diameter.	Circuit.	Rule.			
MAIN GENERATOR No. 1	1	98	27	1.81	120	152	10	Rubber	Lead covered
EQUALISER CONNECTIONS									Armoured
AUXILIARY GENERATOR No. 2	1	95	27	1.81	120	152	8		
EMERGENCY GENERATOR									
ROTARY TRANSFORMER MOTOR GENERATOR									
ENGINE ROOM No. 1	1	2.5 each	19	.41	max 12	18.8	max 60		
BOILER ROOM									
AUXILIARY SWITCHBOARDS									
No. 1 Main Machine	1	4	19	.52	13	27.6	90		
No. 2 (Sec Fire Case)									
No. 3 Bridge Deck	1	10	19	.32	15	23.1	100		
No. 4 Fore Deck	1	4	19	.32	20	23.1	140		
No. 5 Aft Ship	1	6	19	.44	25	23.7	80		
Accommodation									
Shore connections	1	150	61	1.77	200 fuses	286	30		
Large lights	1	10	19	.32	18	23.1	100		
Work shop	1	16	19	.44	40	49	40		
WIRELESS	1	16	19	.44	30	49	120		
SEARCHLIGHT									
MASTHEAD LIGHT	1	16	19	.32	5	9.4	100 100		
SIDE LIGHTS	1	16	19	.32	5	9.4	20 20		
COMPASS LIGHTS	1	16	19	.32	5	9.4	30		
POOP LIGHTS	1	16	19	.32	5	9.4	100		
CARGO LIGHTS	1	2.5	19	.41	6	18.5	120 max		
ARC LAMPS									
HEATERS									

MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		Approximate Length (Lead and Return) Feet.	Insulated with	HOW PROTECTED.
		No. per Pole.	Total Nominal Area per Pole Sq. Ins. 70°	No.	Diameter.	In Circuit.	Rule.			
BALLAST PUMP									Rubber	Lead covered
MAIN BILGE LINE PUMPS										Armoured
GENERAL SERVICE PUMP										
EMERGENCY BILGE PUMP										
SANITARY PUMP										
CIRC. SEA WATER PUMPS										
CIRC. FRESH WATER PUMPS										
AIR COMPRESSOR										
FRESH WATER PUMP										
ENGINE TURNING GEAR	1	1	2.5	19	.41	60	63.2	40		
ENGINE REVERSING GEAR										
LUBRICATING OIL PUMPS										
OIL FUEL TRANSFER PUMP	1	1	2.5	19	.41	8	18.5	60		
WINDLASS										
WINCHES, FORWARD										
WINCHES, AFT										
STEERING GEAR—										
(a) MOTOR GENERATOR										
(b) MAIN MOTOR										
WORKSHOP MOTOR										
VENTILATING FANS										
Life Boat Pump	1	1	2.5	19	.41	12	18.5	30		
Grinding Machine	1	1	2.5	19	.41	10	18.5	40		
Lathe	1	1	2.5	19	.41	8	18.5	40		
Drilling Machine	1	1	2.5	19	.41	10	18.5	50		

All Conductors are of annealed copper conforming to British Standard Specification No. 7 (or International Electro-technical Commission Publication No. 28).

The Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.

The foregoing is a correct description

SIEMENS-SCHÜCKERTWERKE
AKTIENGESELLSCHAFT
HANSEATISCHE ZWEIGNIEDERLASSUNG HAMBURG
in Vollmacht:

Electrical Engineers.

Date

17.1.36

COMPASSES.

Distance between electric generators or motors and standard compass 30 m

Distance between electric generators or motors and steering compass 33 m

The nearest cables to the compasses are as follows:—

A cable carrying 2 Ampères 3 feet from standard compass 2 feet from steering compass.

A cable carrying 2 Ampères close to feet from standard compass close to feet from steering compass.

A cable carrying 2 Ampères feet from standard compass feet from steering compass.

Have the compasses been adjusted with and without the electric installation at work at full power yes

Has the effect of switching on and off circuits, motors and other electro-magnetic apparatus within the vicinity of the compasses been noted yes

The maximum deviation due to electric currents was found to be nil degrees on any course in the case of the standard compass, and nil degrees on any course in the case of the steering compass.

HOWALDTSWERKE A.-G.
KIEL

Builder's Signature.

Date

Is this installation a duplicate of a previous case no If so, state name of vessel

General Remarks (State quality of workmanship, opinions as to class, &c.)

This electric installation has been fitted in accordance with the approved plans, the Secretary's letters and in conformity with the requirements of the Rules. Materials and workmanship are of good quality. It has given full satisfaction under working conditions and was found in order.

Re conductors the German Standards have been applied generally in this installation.

Noted

Mr

18.12.36

Total Capacity of Generators 30— Kilowatts.

The amount of Fee 2 Mks £ 450.— : When applied for, 20/10/36 19

Travelling Expenses (if any) £ : When received, 13.11.36 19

Surveyor to Lloyd's Register of Shipping

Committee's Minute

Assigned

TUE. 22 DEC 1936

TUE. JAN 12 1937

TUE. JAN 19 1937

See Ham. L.C.
22066



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